

**ABSTRACT OF THE DISCLOSURE**

The transmit diversity and symbol rate in a wireless mobile system are increased by allocating the complex symbols to be transmitted in accordance with a time-space slot format that incorporates non-orthogonal-based matrices, defined as matrices whose format is such that the product of the matrix and its Hermitian transpose is other than the identity matrix times a real number other than unity. The non-orthogonal-based matrices are indexed by antenna and by symbol period. Copies and complex conjugates (or negative complex conjugates) of the same symbol that are transmitted from different antennas are mutually separated into non-adjacent parts of the slot. Each non-orthogonal-based "space-time" matrix is composed of orthogonal-based matrices, i.e., matrices other than non-orthogonal-based matrices. Preferably, sequences of complex conjugates are time-reversed in the slot.